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STATUTORY RULES OF NORTHERN IRELAND

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**1998 No. 132**

**HEALTH AND SAFETY**

**Packaging, Labelling and Carriage of Radioactive  
Material by Rail Regulations (Northern Ireland) 1998**

*Made* - - - - *31st March 1998*

*Coming into operation* *1st June 1998*

The Department of Economic Development, being the Department concerned<sup>(1)</sup>, in exercise of the powers conferred on it by Articles 17(1), (2), (4), (5)(b) and (6)(b), and 55(2) of, and paragraphs 1(1) to (4), 2, 3(1), 4, 7(2) and 11 to 15 of Schedule 3 to, the Health and Safety at Work (Northern Ireland) Order 1978<sup>(2)</sup> and of every other power enabling it in that behalf, after consultation in accordance with Articles 46(1) and 54(5) of that Order with the Health and Safety Agency for Northern Ireland and such other bodies as appeared to the Department to be appropriate, hereby makes the following Regulations:

**Part I**

**Interpretation and Application**

**Citation, commencement and interpretation**

1.—(1) These Regulations may be cited as the Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations (Northern Ireland) 1998 and shall come into operation on 1st June 1998.

(2) In these Regulations—

“A<sub>1</sub>” means the maximum activity of special form radioactive material permitted in a Type A package, calculated in accordance with paragraph 15 of the Approved Document;

“A<sub>2</sub>” means the maximum activity of radioactive material other than special form radioactive material permitted in a Type A package, calculated in accordance with paragraph 15 of the Approved Document;

“ADR” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

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(1) See Article 2(2) of S.I. 1978/1039 (N.I. 9)

(2) S.I. 1978/1039 (N.I. 9); Article 3(1)(c) was modified by the Health and Safety at Work Order (Application to Environmentally Hazardous Substances) Regulations (Northern Ireland) 1996 (S.R. 1996 No. 525)

“Approved Document” means the document entitled “Approved Requirements for the Packaging, Labelling and Carriage of Radioactive Material by Rail” published by the Health and Safety Commission and approved by the Department in accordance with regulation 3(1), as revised in accordance with regulation 3(2);

“carriage” means carriage by rail and shall be construed in accordance with paragraph (7);

“Carriage Information” means the information referred to in regulation 35 and described in Schedule 14;

“category” in relation to packages and overpacks means one of the categories referred to in the Tables IX and X of paragraph 19 of the Approved Document and any reference to category I-WHITE, category II-YELLOW or category III-YELLOW shall be construed accordingly;

“the CDGCPL Regulations” means the Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations (Northern Ireland) 1997(3);

“competent authority” means the Secretary of State or any national authority of a state other than the United Kingdom or any international authority which is for the time being designated or otherwise recognised as a competent authority for any purpose in connection with the International Safety Regulations as they apply to rail transport;

“competent authority identification mark” means a mark assigned by a competent authority in accordance with Schedule 1;

“computer” means a computer system including its software;

“consignment” means any package or load of radioactive material, presented by a consignor for carriage;

“consignor” shall be regarded as—

- (a) the person who, having a place of business in Northern Ireland, consigns, whether as principal or agent for another, radioactive material for carriage; or
- (b) if no person satisfies the requirements of sub-paragraph (a), the consignee of radioactive material insofar as that person has control over the carriage of that material in Northern Ireland;

“consignor’s declaration” means the declaration specified in Schedule 14;

“containment system” means the assembly of components of the packaging specified by the designer as intended to retain the radioactive material during carriage;

“contamination” means the contamination of any surface by any radioactive material in quantities in excess of 0.4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters or 0.04 Bq/cm<sup>2</sup> for all other alpha emitters;

“COTIF” means the Convention concerning International Carriage by Rail(4) as revised or re-issued from time to time;

“dangerous goods” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“danger sign” means the sign for radioactive material ascertained in accordance with Schedule 13;

“the Department” means the Department of Economic Development;

“depleted uranium” means uranium containing a lesser mass percentage of uranium-235 than in natural uranium;

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(3) S.R. 1997 No. 247 as amended by S.R. 1997 No. 360

(4) Cmnd 5897

“design” means, in relation to any package, packaging or special form radioactive material, a description which enables that package, packaging or special form radioactive material to be fully identified and which may include specifications, engineering drawings, reports demonstrating compliance with regulatory requirements, and other relevant documentation;

“excepted package” means a package which meets the requirements of sub-paragraphs 1 to 9 and 12 of paragraph 1 of the Approved Document and—

- (a) is a package containing radioactive material of limited activity which meets the requirements of paragraph 2 of the Approved Document;
- (b) is a package containing instruments or manufactured articles which meets the requirements of paragraph 3 of the Approved Document; or
- (c) is an empty packaging which meets the requirements of paragraph 4 of the Approved Document;

“exclusive use” means the sole use, by a single consignor, of a large freight container or a wagon in respect of which all initial, intermediate, and final loading and unloading is carried out in accordance with the directions of the consignor or consignee;

“facility owner” means any person—

- (a) who has an estate or interest in, or right over, a railway facility; and
- (b) whose permission to use that railway facility is needed by another before that other may use it;

and any reference to a facility owner’s railway facility is a reference to the railway facility by reference to which he is a facility owner;

“factory” has the meaning assigned to it by section 175 of the Factories Act (Northern Ireland) 1965(5);

“fissile material” means uranium-233, uranium-235, plutonium-238, plutonium-239, plutonium-241, or any combination thereof, and does not include unirradiated natural uranium, unirradiated depleted uranium, or natural uranium or depleted uranium which has been irradiated in thermal reactors only;

“fissile package” means a package which meets the requirements of paragraph 6 of the Approved Document;

“fixed contamination” means contamination other than non-fixed contamination;

“freight container” means an article of transport equipment designed to facilitate the transport of goods, either packaged or unpackaged, by one or more modes of transport without intermediate reloading, which is of a permanent enclosed character, rigid and strong enough for repeated use, and fitted with devices facilitating its handling, particularly in transfer between conveyances and from one mode of transport to another;

“harbour area” has the meaning assigned to it in regulation 2(1) of the Dangerous Substances in Harbour Areas Regulations (Northern Ireland) 1991(6);

“hazardous properties” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“the Health and Safety Commission” means the Health and Safety Commission established under section 10 of the Health and Safety at Work etc. Act 1974(7);

“IMDG Code” means the International Maritime Dangerous Goods Code, as revised or re-issued from time to time by the International Maritime Organisation(8);

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(5) 1965 c. 20 (N.I.)

(6) S.R. 1991 No. 509

(7) 1974 c. 37

(8) Current edition: Volumes I to IV ISBN 92 801 1314 3; Supplement ISBN 92 801 1316 X

“industrial package” means an industrial package Type 1, an industrial package Type 2 or an industrial package Type 3 ;

“industrial package Type 1” means a package meeting the requirements of sub-paragraph 1 of paragraph 8 of the Approved Document;

“industrial package Type 2” means a package meeting the requirements of sub-paragraph 2 of paragraph 8 of the Approved Document;

“industrial package Type 3” means a package meeting the requirements of sub-paragraph 3 of paragraph 8 of the Approved Document;

“infrastructure controller” means a person who controls railway infrastructure;

“the International Safety Regulations” means the Regulations for the Safe Transport of Radioactive Material<sup>(9)</sup>;

“the ISO classification document” means the International Organisation for Standardisation document, “Sealed Radioactive Sources—Classification”<sup>(10)</sup>;

“the ISO freight containers document” means the International Organisation for Standardisation document, “Series 1 Freight Containers—Specifications and Testing—Part 1: General Cargo Containers”<sup>(11)</sup>;

“the ISO leak test document” means the International Organisation for Standardisation document, “Sealed Radioactive Sources—Leak Test Methods”<sup>(12)</sup>;

“large freight container” means a freight container with a minimum length of 6 metres;

“light maintenance depot” means any land or other property which is normally used for or in connection with the provision of light maintenance services, whether or not it is also used for other purposes;

“light maintenance services” means services of any of the following descriptions, that is to say—

- (a) the refuelling, or the cleaning of the exterior, of locomotives or other rolling stock;
- (b) the carrying out to locomotives or other rolling stock of maintenance work of a kind which is normally carried out at regular intervals of twelve months or less to prepare the locomotives or other rolling stock for service;

“locomotive” means any railway vehicle which has the capacity for self-propulsion (whether or not the power by which it operates is derived from a source external to the vehicle);

“LSA material” means low specific activity material;

“LSA-I” means LSA material comprising—

- (a) ores containing naturally occurring radionuclides, such as uranium and thorium, and uranium or thorium concentrates of such ores;
- (b) solid unirradiated natural uranium or depleted uranium or natural thorium or their solid compounds or their mixtures; or
- (c) radioactive material, other than fissile material, for which the  $A_2$  value is unlimited;

“LSA-II” means LSA material comprising—

- (a) water with tritium concentrated up to 0.8 TBq/L; or

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<sup>(9)</sup> 1985 Edition (as amended 1990) published by the International Atomic Energy Agency, Vienna 1990, Safety Series No. 6 (ISBN 92 0 123890 8)

<sup>(10)</sup> Reference No. ISO 2919-1980 (E)

<sup>(11)</sup> Reference No. ISO 1496/1-1978

<sup>(12)</sup> Reference No. ISO/TR 4826-1979 (E)

- (b) other material in which the activity is distributed throughout and the estimated average specific activity does not exceed  $10^{-4}$  A<sub>2</sub>/g for solids and gases, and  $10^{-5}$  A<sub>2</sub>/g for liquids;
- “LSA-III” means LSA material comprising solids, such as consolidated wastes and activated materials, in which—
- (a) the radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent, such as concrete, bitumen or ceramic;
- (b) the radioactive material is relatively insoluble, or is intrinsically contained in a relatively insoluble matrix, which is of such a nature that if the entire contents of a package containing the material were subjected to the test specified in sub-paragraph 1 of paragraph 14 of the Approved Document the activity in the water used in the test would not, at the end of the test, exceed 0.1 A<sub>2</sub>; and
- (c) the estimated average specific activity of the solid, excluding any shielding material, does not exceed  $2 \times 10^{-3}$  A<sub>2</sub>/g;

“low specific activity material” means radioactive material which by its nature has a limited specific activity, or for which limits of estimated average specific activity, disregarding external shielding materials surrounding the radioactive material, apply;

“low toxicity alpha emitter” means thorium-228 in ores or physical or chemical concentrates, thorium-230 in ores or physical or chemical concentrates, natural uranium, depleted uranium, natural thorium, uranium-235, uranium-238, thorium-232, or an alpha emitter with a half life of less than 10 days;

“maximum normal operating pressure” means the maximum pressure above atmospheric pressure at mean sea level that would develop in the containment system in a period of one year under the conditions of temperature and solar radiation corresponding to environmental conditions of transport in the absence of venting, external cooling by an ancillary system, or operational controls during carriage;

“military establishment” means an establishment intended for use for naval, military or air force purposes or the purposes of the department of the Secretary of State having responsibility for Defence;

“mine” has the meaning assigned to it by section 156 of the Mines Act (Northern Ireland) 1969(13);

“multilateral approval” means approval by the competent authority both of the state of origin of the design or shipment and of each state through or into (but not by air over) which the consignment is to be carried;

“naturally occurring distribution of uranium isotopes” means approximately 99.28% uranium-238 and 0.72% uranium-235 by mass, but including a very small mass percentage of uranium-234;

“natural uranium” means chemically separated uranium containing the naturally occurring distribution of uranium isotopes;

“non-fixed contamination” means contamination that can be removed from a surface during normal handling;

“orange-coloured panel” means a non-reflectorised panel having the same colour and luminance properties as those specified in relation to orange-coloured plates in marginal

1800(1) of Appendix VIII of the Annex to Council Directive [96/49/EC](#) on the approximation of the laws of the Member States with regard to the transport of dangerous goods by rail([14](#));  
“overpack” means an enclosure which is used by a single consignor to consolidate into one handling unit a consignment of two or more packages for convenience of carriage, such as a box or a bag;

“package” means packaging with the radioactive contents thereof as presented for carriage;

“packaging” means the assembly of components necessary to enclose the radioactive contents completely and may, in particular, consist of one or more receptacles, absorbent materials, spacing structures, radiation shielding, service equipment for filling, emptying, venting and pressure relief, and devices for cooling, for absorbing mechanical shocks, for providing handling and tie-down capability, for thermal insulation, and service devices integral to the package, and may be a box, drum or similar receptacle, or a freight container, tank container, tank wagon or wagon where the freight container, tank container, tank wagon or wagon concerned is used as a containment system;

“packaging components” has the meaning assigned to it by Article 2 of the Radioactive Material (Road Transport) (Northern Ireland) Order 1992([15](#));

“piggyback transport” means the carriage of a road vehicle on a wagon;

“quality assurance programme” means a systematic programme of controls, inspections and training applied by any person or organisation involved in the carriage of radioactive material, including designers and manufacturers of packagings, consignors and operators, to ensure compliance with the requirements of these Regulations concerning packages and consignments;

“quarry” has the same meaning as in Article 2(2) of the Quarries (Northern Ireland) Order 1983([16](#));

“radiation level” means the corresponding dose equivalent rate expressed in mSv per hour;

“radioactive material” has the meaning assigned to it by Article 3 of the Radioactive Material (Road Transport) (Northern Ireland) Order 1992;

“railway” means a system of transport employing parallel rails which provide support and guidance for vehicles carried on flanged wheels, except any such system which—

- (a) is used wholly or mainly for the carriage of passengers and employing parallel rails which are laid wholly or mainly along a street or in any other place to which the public has access (including a place to which the public has access only on making a payment); or
- (b) is operated wholly within a factory, harbour area, military establishment, mine or quarry;

“railway facility” means any track, station or light maintenance depot;

“railway infrastructure” means fixed assets used for the operation of a railway including its permanent way and plant used for signalling or exclusively for supplying electricity for operational purposes to the railway, but it does not include a station;

“railway vehicle” means any conveyance which is used to carry radioactive material on a railway;

“RID” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“road vehicle” means any conveyance which is used to carry radioactive material on a road;

“rolling stock” means any carriage, wagon or other vehicle used on track and includes a locomotive;

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(14) O.J. No. L235, 17.9.96, p. 25

(15) S.I. 1992/234 (N.I. 27)

(16) S.I. 1983/150 (N.I. 4)

“routine carriage” means carriage in incident free conditions;

“SCO” means a surface contaminated object;

“SCO-I” means an SCO on which—

- (a) the non-fixed contamination on the accessible surface averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $0.4 \text{ Bq/cm}^2$  for all other alpha emitters;
- (b) the fixed contamination on the accessible surface averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $4 \times 10^4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3 \text{ Bq/cm}^2$  for all other alpha emitters; and
- (c) the non-fixed contamination plus the fixed contamination on the inaccessible surface, averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $4 \times 10^4 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $4 \times 10^3 \text{ Bq/cm}^2$  for all other alpha emitters;

“SCO-II” means an SCO on which either the fixed or non-fixed contamination on the surface exceeds the applicable limits specified for SCO-I in the definition of that term and on which—

- (a) the non-fixed contamination on the accessible surface averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $400 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $40 \text{ Bq/cm}^2$  for all other alpha emitters;
- (b) the fixed contamination on the accessible surface averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters; and
- (c) the non-fixed contamination plus the fixed contamination on the inaccessible surface, averaged over an area of  $300 \text{ cm}^2$  (or the area of the surface if the area is less than  $300 \text{ cm}^2$ ) does not exceed  $8 \times 10^5 \text{ Bq/cm}^2$  for beta and gamma emitters and low toxicity alpha emitters, or  $8 \times 10^4 \text{ Bq/cm}^2$  for all other alpha emitters;

“shipment” means the specific movement of a consignment from origin to destination where that movement includes carriage in Northern Ireland;

“special arrangement” means those conditions approved by the competent authority under which a consignment, which does not satisfy all the applicable requirements of these Regulations, may be carried;

“special form radioactive material” means an indispersible solid radioactive material, or a sealed capsule containing radioactive material, which meets the requirements of paragraph 5 of the Approved Document;

“specific activity” means either the activity of a radionuclide per unit mass of that nuclide or, in the case where the radionuclide is essentially uniformly distributed in radioactive material, the activity per unit mass of that material;

“station” means any land or other property which consists of premises used as, or for the purposes of, or otherwise in connection with, a railway passenger station or railway passenger terminal (including any approaches, forecourt, cycle store or car park), whether or not the land or other property is, or the premises are, also used for other purposes;

“street” means the whole or any part of the following, irrespective of whether it is a thoroughfare—

- (a) any road, highway, lane, footway, alley or passage,
- (b) any square or court, and
- (c) any land laid out as a way whether or not it is for the time being formed as a way or not, together with any land on the verge of a street or between two carriageways, and where a street passes over a bridge or through a tunnel, references to a street shall include that bridge or tunnel;

“subsidiary hazard” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“subsidiary hazard sign” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“surface contaminated object” means a solid object which is not itself radioactive but which has radioactive material distributed on its surfaces;

“tank” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“tank container” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“tank wagon” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations;

“track” means any land or other property comprising the permanent way of any railway, taken together with the ballast, sleepers and metals laid thereon, whether or not the land or other property is also used for other purposes; and any reference to track includes a reference to—

- (a) any level crossing, bridges, viaducts, tunnels, culverts, retaining walls, or other structures used or to be used for the support of, or otherwise in connection with, track; and
- (b) any walls, fences or other structures bounding the railway or bounding any adjacent or adjoining property;

“train” means—

- (a) two or more items of rolling stock coupled together, at least one of which is a locomotive; or
- (b) a locomotive not coupled to any other rolling stock;

“train operator” in relation to any train, means any person who has the management of that train for the time being;

“Transport Index” means a single number assigned to a package, overpack, freight container, tank container, tank wagon or wagon or to unpackaged LSA-I or SCO-I, determined in accordance with paragraph 17 of the Approved Document;

“Type A package” means a package containing an activity up to  $A_1$ , if special form radioactive material, or up to  $A_2$  if not special form radioactive material, meeting the requirements of paragraph 10 of the Approved Document;

“Type B package” means a package containing an activity which may be in excess of  $A_1$ , if special form radioactive material, or in excess of  $A_2$ , if not special form radioactive material, which is either a Type B(M) package or a Type B(U) package;

“Type B(M) package” means a package meeting the requirements of paragraph 13 of the Approved Document;

“Type B(U) package” means a package meeting the requirements of paragraph 12 of the Approved Document;

“uncompressed gas” means gas at a pressure not exceeding ambient atmospheric pressure at the time the containment system is closed;



“unilateral approval” means approval of a design by the competent authority of the state of origin of the design;

“unirradiated thorium” means thorium containing not more than  $10^{-7}$  g of uranium-233 per gram of thorium-232;

“unirradiated uranium” means uranium containing not more than  $10^{-6}$  g of plutonium per gram of uranium-235 and not more than 9 MBq of fission products per gram of uranium-235;

“UN number” has the meaning assigned to it in regulation 2(1) of the CDGCPL Regulations and any reference to the letters “UN” followed by a number, in relation to certain radioactive material, means the particular UN number for that material specified in paragraph 20 of the Approved Document; and

“wagon” means a railway vehicle, other than a tank wagon, used for the carriage of goods.

(3) These Regulations give effect to the International Safety Regulations and expressions used in these Regulations which are also used in those Regulations have the meaning they bear in those Regulations.

(4) For the purposes of these Regulations, the operator of a freight container, tank container, tank wagon, or wagon used for the carriage of radioactive material shall be—

- (a) the person who, having a place of business in Northern Ireland, owns the freight container, tank container, tank wagon or wagon concerned;
- (b) if no person satisfies the requirements of sub-paragraph (a), the person who, having a place of business in Northern Ireland, acts as agent for the owner of the said freight container, tank container, tank wagon or wagon; or
- (c) if no person satisfies the requirements of either sub-paragraph (a) or sub-paragraph (b) the operator of the train on which the freight container or tank container is carried or of which the tank wagon or wagon forms part.

(5) For the purposes of paragraph (4), a person to whom a freight container, tank container, tank wagon, or wagon is leased or hired shall be deemed to be the owner thereof unless the lessor or, as the case may be, the hirer has made a written agreement with the person to whom he has leased or hired the freight container, tank container, tank wagon or wagon to the effect that the lessor or hirer shall assume the responsibilities of the owner imposed by or under these Regulations.

(6) For the purposes of these Regulations—

- (a) the members of the crew of a train shall include the driver, guard and any other person on board who has responsibilities in connection with the carriage of radioactive material on that train; and
- (b) any reference to the carriage of any radioactive material in bulk shall be a reference to the carriage of solid radioactive material without packagings, other than in a tank.

(7) For the purposes of these Regulations, a freight container, tank container, tank wagon or wagon shall be deemed to be engaged in the carriage of radioactive material throughout the period—

- (a) in the case where the freight container, tank container, tank wagon or wagon concerned has been loaded with the radioactive material concerned before being brought onto the railway, from the time when the said freight container, tank container, tank wagon or wagon is brought onto the railway for the purpose of carrying that material; or
- (b) in the case where the freight container, tank container, tank wagon or wagon concerned has been brought onto the railway before the commencement of loading, from the commencement of loading the said freight container, tank container, tank wagon or wagon with the radioactive material for the purpose of carrying that material,

until the time when the freight container, tank container, tank wagon or wagon—

- (c) is removed from the railway; or
- (d) has been unloaded and, where necessary, cleaned, purged or decontaminated so that any of the radioactive material which remains therein is not sufficient to create a risk to the health and safety of any person.

### **Application**

2.—(1) Subject to paragraphs (2) and (3), these Regulations shall apply to, and in relation to, the carriage of radioactive material.

(2) These Regulations shall not apply to, or in relation to, the carriage of radioactive material in the body of a person having been—

- (a) surgically implanted therein in the form of a cardiac pacemaker, or other device; or
- (b) administered to that person in the form of radiopharmaceuticals.

(3) Regulations 3 to 29, 34 to 38 and 40 shall not apply to, or in relation to, the carriage of radioactive material where—

- (a) the carriage forms part of an international transport operation which is subject to any bilateral or multilateral special agreement made under the terms of article 4.3 of ADR to which the United Kingdom is a signatory and conforms with any conditions attached to the agreement concerned;
- (b) the carriage forms part of an international transport operation within the meaning of COTIF and conforms in every respect with the provisions of RID; or
- (c) the carriage forms part of an international transport operation which is subject to any bilateral or multilateral special agreement made under the terms of COTIF to which the United Kingdom is a signatory and conforms with any conditions attached to the agreement concerned.

(4) Regulations 4(a) and (d), 5 to 8, 10, 11, 12(1)(a), (2) and (3) and 13 to 16 shall not apply to or in relation to the carriage of any radioactive material where the carriage forms part of a transport operation which includes transport by road in Northern Ireland.

## **Part II**

### **Approved Document**

#### **Approved Document**

3.—(1) The Department shall approve for the purposes of these Regulations the document published by the Health and Safety Commission entitled—“Approved Requirements for the Packaging, Labelling and Carriage of Radioactive Material by Rail”, containing—

- (a) in Part I, the requirements for packages and packagings;
- (b) in Part II, the test procedures for radioactive material and packages;
- (c) in Part III, the information requirements concerning the preparation of radioactive material;
- (d) in Part IV, the requirements for tanks; and
- (e) explanatory notes and other material requisite for the use of the document.

(2) The Department may approve a revision of the Approved Document and, when it does so, the Department shall within 3 months of the date of that approval publish, in such manner as it considers appropriate, a notice specifying the revision, the date on which it was approved and the

date on which it takes effect, which last-mentioned date shall be not less than 6 months after the date of the approval of the revision.

#### **Duties in relation to the Approved Document**

4. Without prejudice to the generality of the provisions contained in these Regulations—
  - (a) the consignor of radioactive material shall ensure that such of the requirements specified in the Approved Document as are applicable to the consignment of that material are complied with in relation thereto;
  - (b) the operator of any freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material shall ensure that such of the requirements specified in the Approved Document as are applicable to the carriage of that material are complied with in relation thereto;
  - (c) the operator of any train which is being used for the carriage of radioactive material and each infrastructure controller upon whose railway the material is carried, shall take all reasonable steps to ensure that such of the requirements specified in the Approved Document as are applicable to the carriage of that material are complied with in relation thereto;
  - (d) any person who designs, manufactures, imports, supplies, modifies, repairs, or tests a package or tests radioactive material which is intended to be, or is being, carried shall ensure insofar as they are matters within his control that such of the requirements in the Approved Document as are applicable to that package or radioactive material are complied with in relation thereto.

### **Part III**

#### **Approvals**

##### **Approval of design for special form radioactive material**

5.—(1) A person shall not cause or permit to be carried any special form radioactive material without unilateral approval of the design for that material.

(2) Where the design for special form radioactive material originated in the United Kingdom, an application for approval of the design by the Secretary of State shall include the information specified in Schedule 2.

(3) The approval by the Secretary of State of a design for special form radioactive material which originated in the United Kingdom shall be given by the issue of a special form radioactive material approval certificate stating that the design meets the requirements for special form radioactive material specified in paragraph 5 of the Approved Document.

(4) The approval of a design for special form radioactive material which originated in a state other than the United Kingdom shall be evidenced by a special form radioactive material approval certificate issued by the competent authority of the state of origin of the design stating that the design meets requirements equivalent to those referred to in paragraph (3).

##### **Approval of Type B(U) package designs**

6.—(1) A person shall not cause or permit to be carried any Type B(U) package without unilateral approval of the package design for that package or, in the case of a package containing fissile material and requiring approval under regulation 8(1), multilateral approval of the package design for that package.

(2) An application for approval of a package design for a Type B(U) package by the Secretary of State shall include the information specified in Schedule 3.

(3) The approval by the Secretary of State of a package design for a Type B(U) package shall be given by the issue of a package design approval certificate stating that the package design meets the requirements for Type B(U) packages specified in paragraphs 11 and 12 of the Approved Document.

(4) The approval by a competent authority other than the Secretary of State of a package design for a Type B(U) package shall be evidenced by a package design approval certificate issued by that competent authority stating that the package design meets requirements equivalent to those referred to in paragraph (3).

### **Approval of Type B(M) package designs**

7.—(1) A person shall not cause or permit to be carried any Type B(M) package without multilateral approval of the package design for that package.

(2) An application for approval of a package design for a Type B(M) package by the Secretary of State shall include the information specified in Schedule 4.

(3) The approval by the Secretary of State of a package design for a Type B(M) package shall be given by the issue of a package design approval certificate stating that the package design meets the requirements for Type B(M) packages specified in paragraphs 11 and 13 of the Approved Document.

(4) The approval by a competent authority other than the Secretary of State of a package design for a Type B(M) package shall be evidenced by a package design approval certificate issued by that competent authority stating that the package design meets requirements equivalent to those referred to in paragraph (3).

### **Approval of package designs for fissile material**

8.—(1) A person shall not cause or permit to be carried any package containing fissile material, other than a package containing fissile material which falls within paragraph 7 of the Approved Document, without multilateral approval of the package design for that package.

(2) An application for the approval of a package design for fissile material by the Secretary of State shall include the information specified in Schedule 5.

(3) The approval by the Secretary of State of a package design for fissile material shall be given by the issue of a package design approval certificate stating that the package design meets the requirements for fissile packages specified in paragraph 6 of the Approved Document.

(4) The approval by a competent authority other than the Secretary of State of a package design for such material shall be evidenced by a package design approval certificate issued by that competent authority stating that the package design meets requirements equivalent to those referred to in paragraph (3).

### **Saving and transitional provision for designs approved under earlier international regulations or under previous Regulations**

9.—(1) Subject to paragraphs (2) to (4), notwithstanding the provisions of regulations 6 to 8 of these Regulations or regulation 27 of the Carriage of Dangerous Goods by Rail Regulations (Northern Ireland) 1998<sup>(17)</sup>, any packaging, the construction of which was commenced before the date of the coming into operation of these Regulations and which is manufactured to a design approved by a competent authority under the Regulations for the Safe Transport of Radioactive Material 1973 Edition<sup>(18)</sup>, the 1973 (as amended) Edition<sup>(19)</sup> of those Regulations or the Carriage

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<sup>(17)</sup> S.R. 1998 No. 131

<sup>(18)</sup> Published by the International Atomic Energy Agency, Vienna 1973, Safety Series No. 6 (STI/PUB 323)

of Dangerous Goods by Rail Regulations (Northern Ireland) 1998 may continue to be used for the carriage of radioactive material.

(2) The use of any packaging falling within paragraph (1) shall require multilateral approval.

(3) Before use, any packaging falling within paragraph (1) shall be legibly and durably marked with a serial number assigned in accordance with paragraph 8 of Schedule 13.

(4) Paragraph (1) shall not apply where changes which have been made in the design of the packaging or in the nature or quantity of the authorised radioactive contents are likely to affect safety.

### **Approval of shipments under special arrangement**

**10.**—(1) Radioactive material, whose carriage is otherwise prohibited by regulation 17(5), 19 or 20(2), may be carried under special arrangement with multilateral approval.

(2) Approval may not be given by the Secretary of State to a shipment under special arrangement unless the provisions for carriage are adequate to ensure that the overall level of safety during carriage is at least equivalent to that which would have been achieved if all the applicable requirements of these Regulations had been met.

(3) An application for approval by the Secretary of State of a shipment under special arrangement shall include the information specified in Schedule 6.

(4) The approval by the Secretary of State of a shipment under special arrangement shall be given by the issue of a special arrangement approval certificate.

(5) The approval by a competent authority of a state other than the United Kingdom of a shipment under special arrangement shall be evidenced by a special arrangement approval certificate issued by that competent authority.

### **Approval of other shipments**

**11.**—(1) A person shall not cause or permit to be made any shipment of the following without multilateral approval of the shipment—

- (a) a Type B(M) package especially designed to allow controlled intermittent venting;
- (b) a Type B(M) package containing radioactive material with an activity greater than either—
  - (i)  $3 \times 10^3$  A<sub>1</sub> or  $3 \times 10^3$  A<sub>2</sub>, as appropriate, or
  - (ii) 1000 TBq,whichever is the lower; or
- (c) packages containing fissile material where the sum of the Transport Indexes of the individual packages exceeds 50.

(2) An application for approval by the Secretary of State of a shipment falling within paragraph (1) shall include the information specified in Schedule 7.

(3) The approval by the Secretary of State of a shipment falling within paragraph (1) shall be given by the issue of a certificate.

(4) The approval by a competent authority other than the Secretary of State of a shipment falling within paragraph (1) shall be evidenced by a certificate issued by that competent authority.

## Part IV

### Packaging Requirements

#### Quality assurance programmes

12.—(1) Insofar as they are matters within his control, it shall be the duty of—

- (a) the designer, manufacturer and consignor of any package, packaging or special form radioactive material;
- (b) the operator of any freight container, tank container, tank wagon or wagon which is used for the carriage of any such package, packaging or special form radioactive material;
- (c) the train operator on whose train any such package, packaging or special packaging or special form radioactive material is carried; and
- (d) the infrastructure controller on whose railway any such package, packaging or special form radioactive material is carried,

to establish and maintain an adequate quality assurance programme in order to ensure that the requirements of these Regulations in relation to the design, manufacture, testing, documentation, maintenance, inspection and carriage of that package, packaging or special form radioactive material are complied with.

(2) Where these Regulations require a package design, design for special form radioactive material or a shipment to be approved by the Secretary of State, such approval shall not be given unless the Secretary of State is satisfied as to the adequacy of the quality assurance programme for that design or shipment.

(3) It shall be the duty of the designer and manufacturer of any package design and the consignor and operator of any package, the design of which requires approval under these Regulations, when so requested by the Secretary of State—

- (a) to provide the Secretary of State with facilities to inspect the packaging during construction and use;
- (b) to demonstrate to the Secretary of State that the construction methods and materials used for the construction of the packaging are in accordance with the approved design specifications;
- (c) to demonstrate to the Secretary of State that all packagings or special form radioactive material built to an approved design are periodically inspected and, as necessary, repaired and maintained in good condition so that they continue to comply with all the requirements of these Regulations, even after repeated use; and
- (d) in the case where a design specification has been fully implemented, to produce a certificate to that effect to the Secretary of State.

#### Testing

13. The Secretary of State may require such additional tests as he considers necessary to be made on any package or special form radioactive material required by these Regulations to be tested in accordance with paragraph 14 of the Approved Document.

#### Notification and registration of serial numbers

14.—(1) The manufacturer of any packaging manufactured after the date of the coming into operation of these Regulations to a design approved by the Secretary of State under regulation 6(3), 7(3), or 8(3) or falling within regulation 9(1), shall—

- (a) assign a unique serial number to that packaging; and
  - (b) promptly notify the Secretary of State of the serial number assigned.
- (2) The owner of any other packaging, manufactured to a design falling within regulation 9(1), shall promptly notify the Secretary of State of any serial number assigned to that packaging.
- (3) The Secretary of State shall maintain a register of the serial numbers notified to him under paragraphs (1) and (2).

### **Package inspection prior to shipment**

- 15.**—(1) A person shall not cause or permit to be made the first shipment of any package unless the requirements in Schedule 8 are met.
- (2) A person shall not cause or permit to be made any shipment of any package unless the requirements in Schedule 9 are met.

### **Notification of shipment**

**16.**—(1) A person shall not cause or permit to be made the first shipment of any package which requires the approval of any competent authority under these Regulations unless copies of each approval certificate required for the package design of that package have been submitted to the competent authority of each state through or into which the consignment is to be carried.

- (2) Subject to paragraph (3), a person shall not cause or permit to be made any shipment—
- (a) of a Type B(U) package containing radioactive material with an activity greater than—
    - (i)  $3 \times 10^3$  A<sub>1</sub> or  $3 \times 10^3$  A<sub>2</sub>, as appropriate, or
    - (ii) 1000 TBq,whichever is the lower;
  - (b) of a Type B(M) package; or
  - (c) of a shipment under special arrangement,

without giving notice in accordance with Schedule 10 to the competent authority of each state through or into which the shipment is to be transported.

(3) Separate notification to the Secretary of State is not required of the information specified in Schedule 10 where that information was included in the application for approval of shipment under regulation 11(2).

## **Part V**

### **General Carriage and Operating Requirements**

#### **General prohibitions**

**17.**—(1) A person shall not cause or permit to be carried in a passenger train any category I-WHITE package, other than an excepted package, any category II-yellow or any category III-yellow package unless the package is carried in a coach or a compartment thereof from which all passengers, other than those authorised to accompany the package, are excluded.

(2) A person shall not cause or permit to be carried any package if he knows or has reason to believe that the package has or may have been damaged unless—

- (a) following the incident which resulted or may have resulted in such damage, the consignor of the package—

- (i) has examined it,
  - (ii) is satisfied that it still complies with the relevant requirements of these Regulations, and
  - (iii) issues a certificate to that effect; and
- (b) that certificate is carried with the package.
- (3) A person shall not cause or permit to be carried any radioactive material in packaging which displays a danger sign which does not correspond to the material therein.
- (4) A person shall not cause or permit to be carried any radioactive material unless he holds the Carriage Information for that material.
- (5) Subject to regulation 10, a person shall not cause or permit to be carried any radioactive material except where such material—
- (a) forms the contents of a package which is either—
    - (i) an excepted package,
    - (ii) an industrial package,
    - (iii) a Type A package,
    - (iv) a Type B package, or
    - (v) a fissile package which meets the requirements of paragraph 6 of the Approved Document; or
  - (b) is unpackaged LSA-I or SCO-I which is to be carried in accordance with the conditions prescribed in paragraph 9 of the Approved Document.
- (6) A person shall not cause or permit to be carried in any tank which has been used for the carriage of radioactive material any goods other than radioactive material.

#### **Suitability of freight containers, tank containers, tank wagons and wagons**

**18.**—(1) A person shall not cause or permit to be carried any radioactive material in a freight container, tank container, tank wagon or wagon unless the freight container, tank container, tank wagon or wagon concerned—

- (a) is suitable for the purpose, having regard to—
  - (i) the nature and circumstances of the journey to be undertaken, and
  - (ii) the hazardous properties and quantity of the radioactive material and any other goods to be carried with it; and
- (b) has been adequately maintained.

(2) A train operator shall not cause or permit to be carried any radioactive material in a freight container, tank container, tank wagon or wagon unless he has taken all reasonable steps to ensure that paragraph (1) has been complied with.

#### **Contents limits**

**19.** Subject to regulation 10, a person shall not cause or permit to be carried any package, the radioactive contents of which exceed the limits specified in paragraph 16 of the Approved Document for that type of package.

#### **Transport Index limits**

**20.**—(1) A person shall not consign for carriage—



- (a) unpackaged LSA-I or SCO-I; or
- (b) other radioactive material in a package, overpack, freight container, tank container, tank wagon or wagon,

unless the Transport Index for that item and for the whole consignment has been determined in accordance with paragraph 17 of the Approved Document.

(2) Subject to regulation 10, a person shall not cause or permit to be carried any package or overpack where the Transport Index for that item is greater than 10, except where that item is being carried under exclusive use.

(3) A person shall not cause or permit to be carried any radioactive material, other than a consignment consisting entirely of LSA-I, in a freight container, tank container, tank wagon or wagon where the sum of the Transport Indexes in the freight container, tank container, tank wagon or wagon concerned is greater than 50, except where that freight container, tank container, tank wagon or wagon is under exclusive use.

(4) A person shall not cause or permit to be carried in any freight container, tank container, tank wagon or wagon under exclusive use any packages or overpacks of fissile material where the sum of the Transport Indexes in the freight container, tank container, tank wagon or wagon concerned is greater than 100.

(5) A person shall not cause or permit to be carried in an overpack any package of fissile material for which the Transport Index for nuclear criticality control exceeds 0.

#### **Activity limits**

- 21.** A person shall not cause or permit to be carried in any freight container or wagon—
- (a) LSA-II or LSA-III in the form of combustible solids, liquids or gases; or
  - (b) SCO,

where the total activity in the freight container or wagon concerned exceeds  $100 \times A_2$ .

#### **Radiation level limits**

**22.**—(1) Subject to paragraph (2), a person shall not cause or permit to be carried in any freight container, tank container, tank wagon or wagon any radioactive material where the radiation level, under conditions likely to be encountered in routine carriage, would exceed 2 mSv/h at any point on, and 0.1 mSv/h at 2 m from, the external surfaces of the freight container, tank container, tank wagon or wagon concerned.

(2) A person shall not cause or permit to be carried in any freight container, tank container, tank wagon or wagon a consignment under exclusive use where the radiation level exceeds the limits specified in Schedule 11.

#### **Contamination level limits**

**23.**—(1) Subject to paragraph (6), a person shall not consign any package or overpack where the level of non-fixed contamination on the external surfaces thereof (in the case of overpacks the external and the internal surfaces thereof) exceeds the limits specified in Table III of paragraph 19 of the Approved Document.

(2) The operator of any freight container, tank container, tank wagon or wagon which is being used for the carriage of any package shall ensure that the level of non-fixed contamination on the external surfaces of that package is kept as low as practicable and, under routine carriage conditions, does not exceed the limits specified in the Table III of paragraph 19 of the Approved Document.

(3) Subject to paragraph (6), the operator of any freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material shall ensure that the level of non-fixed contamination on the external and internal surfaces of the freight container, tank container, tank wagon or wagon concerned does not exceed the levels specified in Table III of paragraph 19 of the Approved Document.

(4) The operator of any freight container, tank container, tank wagon or wagon which is used routinely for the carriage of radioactive material shall ensure that the external and internal surfaces of the freight container, tank container, tank wagon or wagon concerned are periodically checked to determine the level of contamination.

(5) The frequency of the periodic checking referred to in paragraph (4) shall be related to the likelihood of contamination and the extent to which radioactive material is carried.

(6) Subject to paragraph (7), the operator of any freight container, tank container, tank wagon or wagon, the surfaces of which have become contaminated above the limits specified in Table III of paragraph 19 of the Approved Document or which show a level in excess of  $5\mu$  Sv/h, during carriage shall ensure that the freight container, tank container, tank wagon or wagon concerned—

- (a) is decontaminated as soon as possible by a qualified person; and
- (b) is not re-used unless
  - (i) the level of non-fixed contamination does not exceed the limits specified in Table III of paragraph 19 of the Approved Document, and
  - (ii) the level of fixed contamination on surfaces after decontamination is less than  $5\mu$  Sv/h.

(7) Paragraphs (1), (3) and (6) shall not apply in relation to the internal surfaces of any overpack, freight container, tank container, tank wagon or wagon dedicated to the carriage of LSA material or SCO under exclusive use for so long as the overpack, freight container, tank container, tank wagon or wagon concerned remains under that specific exclusive use.

### **Carriage in tanks**

**24.** A person shall not cause or permit to be carried any radioactive material in a tank, except where—

- (a) the radioactive material is LSA-I or LSA-II; or
- (b) the tank conforms to the packaging requirements of a Type A package, a Type B(U) package or a Type B(M) package.

### **Prohibition on over-filling tank containers and tank wagons**

**25.** A person shall not cause or permit any tank container or tank wagon, or any compartment thereof, to be filled beyond 93% of its capacity with any radioactive material at the reference temperature of 15°C.

### **Openings, valves and caps of tank containers and tank wagons to be securely closed**

**26.—(1)** Subject to paragraph (3), the operator of any tank container or tank wagon which is being used for the carriage of radioactive material shall ensure that—

- (a) all openings in the tank container or tank wagon concerned; and
- (b) in the case where any discharge or filling opening in the tank container or tank wagon concerned is fitted with more than one valve or is fitted with a cap, all such valves and that cap,

are securely closed prior to carriage.

(2) Subject to paragraph (3), the operator of any train which is being used for the carriage of any tank container or tank wagon containing radioactive material shall take all reasonable steps to ensure that—

- (a) all openings in the tank container or tank wagon concerned; and
- (b) in the case where any discharge or filling opening in the tank container or tank wagon concerned is fitted with more than one valve or is fitted with a cap, all such valves and that cap,

remain securely closed throughout carriage.

(3) Nothing in paragraphs (1) and (2) shall be taken as permitting the proper functioning of any safety device to be compromised.

### **Carriage in bulk**

**27.**—(1) Subject to paragraphs (2) and (3), a person shall not cause or permit to be carried any radioactive material in bulk.

(2) LSA-I may be carried in bulk provided—

- (a) in the case of natural ores it is carried under exclusive use; or
- (b) in any other case, it is carried in such a way as to ensure that there can be no escape of contents from the freight container or wagon in which it is being carried and no loss of shielding.

(3) SCO-I may be carried in bulk provided—

- (a) it is carried in a freight container or wagon in such a way as to ensure that there can be no escape of contents and no loss of shielding;
- (b) where the contamination on the accessible and inaccessible surfaces of the radioactive material is greater than 4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters or 0.4 Bq/cm<sup>2</sup> for all other alpha emitters, the material is carried under exclusive use; and
- (c) where it is suspected that non-fixed contamination on inaccessible surfaces of the radioactive material is greater than 4 Bq/cm<sup>2</sup> for beta and gamma emitters and low toxicity alpha emitters or 0.4 Bq/cm<sup>2</sup> for all other alpha emitters, measures are taken to ensure that the material is not released into the freight container or wagon.

## **Part VI**

### **Loading and Unloading**

#### **Prohibition of mixed loading and segregation of radioactive material**

**28.**—(1) A person shall not cause or permit to be carried any package in a freight container or wagon where the freight container or wagon concerned is being used for the carriage of—

- (a) explosives which are subject to the Classification and Labelling of Explosives Regulations (Northern Ireland) 1991(20) other than those explosives within a Compatibility Group whose Compatibility Group Letter is S; or

(b) dangerous goods which are classified in accordance with regulation 5 of the CDGCPL Regulations and which are required by those Regulations to be labelled with a “liable to explosion” subsidiary hazard sign.

(2) A person shall not cause or permit to be carried any radioactive material in any freight container or wagon where the freight container or wagon concerned is being used for the carriage of undeveloped photographic film unless the radioactive material is segregated from the film so as to ensure that the radiation exposure of the film due to the carriage of the radioactive material is limited to 0.1 mSv per consignment of film.

(3) A train operator shall not cause or permit to be carried any consignment of radioactive material unless that consignment is adequately segregated from any consignment of dangerous goods other than radioactive material carried within it in such a way as to prevent the creation of a significantly greater risk than each of the consignments is liable to create separately.

### **Loading, stowage and unloading of radioactive material**

**29.**—(1) The operator of a freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material and any other person engaged in such carriage shall take such steps as it is reasonable for them respectively to take to ensure that nothing in the manner in which radioactive material is loaded, stowed or unloaded from the freight container, tank container, tank wagon or wagon concerned is liable to create a significant risk or significantly increase any existing risk to the health or safety of any person.

(2) Without prejudice to the generality of paragraph (1), a person shall not cause or permit to be carried any package or overpack in any freight container or wagon unless any requirements specified in Schedule 12 have been complied with.

## **Part VII**

### **Security Measures and Emergency Arrangements**

#### **Safe carriage and security**

**30.** Every person engaged in the carriage of radioactive material shall take all reasonable steps to ensure that—

- (a) nothing is done during that carriage to create a significant risk or significantly increase any existing risk to the health or safety of any person; and
- (b) unauthorised access to the radioactive material is prevented.

#### **Marshalling and formation of trains**

**31.** The operator of a train which is being used for the carriage of radioactive material shall ensure that all necessary precautions are taken during the marshalling or formation of that train to prevent the creation of a significant risk or the significant increase of any existing risk to the health or safety of any person.

#### **Prevention of fire, explosion and leakage**

**32.** A person shall not cause or permit anything to be done which is liable to create a significant risk or significantly increase any existing risk of a fire, an explosion or a leakage whilst that material is being carried.

## **Emergency arrangements**

33. Each train operator, facility owner and infrastructure controller shall—
- (a) draw up and, where appropriate, give effect to such safety systems and procedures as will adequately deal with any emergency involving radioactive material—
    - (i) being carried by the relevant train,
    - (ii) present at the relevant railway facility, or
    - (iii) present on the relevant railway track; and
  - (b) co-operate with each other as to ensure effective co-ordination of their respective safety systems and procedures.

## **Part VIII**

### **Information**

#### **Information to be displayed during carriage**

34.—(1) The consignor of any package or overpack for carriage shall ensure that prior to carriage information concerning the radioactive contents thereof is displayed on the package or overpack concerned in accordance with Parts I and III of Schedule 13.

(2) The operator of any freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material shall ensure that information concerning that material is displayed on the freight container, tank container, tank wagon or wagon concerned in accordance with Parts II and III of Schedule 13.

(3) A person shall not cause or permit any of the information referred to in Schedule 13 to be displayed on any package, overpack, freight container, tank container, tank wagon or wagon concerning radioactive material which is no longer being carried therein.

(4) A person shall not cause or permit any information to be displayed on a package, overpack, freight container, tank container, tank wagon or wagon which would be likely to confuse the emergency services when read in conjunction with any information displayed in accordance with Schedule 13.

(5) Nothing in these Regulations or in the Approved Document shall prevent the display of information, in addition to the information required to be displayed in accordance with Schedule 13, on any package, overpack, freight container, tank container, tank wagon or wagon concerning any radioactive material being carried therein, provided such information is not displayed on orange-coloured panels.

(6) The operator of any freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material shall ensure that any danger sign, orange-coloured panel or subsidiary hazard sign affixed thereto in accordance with Schedule 13 is clean and free from obstruction when the freight container, tank container, tank wagon or wagon concerned is handed over to the train operator.

(7) An operator of a train shall not cause or permit to be carried therein any radioactive material in a package, overpack, freight container, tank container, tank wagon or wagon unless he has taken all reasonable steps to ensure that information concerning that material is displayed on the package, overpack, freight container, tank container, tank wagon or wagon concerned in accordance with Schedule 13.

(8) The operator of a train which is being used for the carriage of radioactive material in a package, overpack, freight container, tank container, tank wagon or wagon shall take all reasonable

steps to ensure that any danger sign, orange-coloured panel or subsidiary hazard sign affixed thereto in accordance with Schedule 13 is kept clean and free from obstruction during carriage.

- (9) A person shall not—
- (a) remove any danger sign, orange-coloured panel or subsidiary hazard sign affixed in accordance with Schedule 13 from a package, overpack, freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material, except for the purpose of updating the information thereon;
  - (b) falsify any of the information on such a sign or panel.

### **Information to be compiled and provided by consignors**

- 35.**—(1) A consignor shall not prepare a package for shipment unless he is in possession of—
- (a) all certificates of approval required by these Regulations for the shipment; and
  - (b) a set of instructions concerning the proper closing of the package or overpack and other preparations for shipment.
- (2) The consignor of any radioactive material for carriage in a freight container, tank container, tank wagon or wagon shall—
- (a) make available for inspection by the operator thereof, all certificates referred to in paragraph (1)(a); and
  - (b) ensure that the said operator is provided with the Carriage Information as set out in Schedule 14,
- prior to carriage.
- (3) The consignor of any radioactive material for carriage other than in a freight container, tank container, tank wagon or wagon shall ensure that the operator of the train in which the material is to be carried is provided with the Carriage Information prior to carriage.
- (4) A consignor or anyone acting on his behalf shall not provide false or misleading information to any operator concerning the consignment.

### **Carriage Information to be provided by operators**

- 36.**—(1) Any operator of a freight container, tank container, tank wagon or wagon who engages another operator of a freight container, tank container, tank wagon or wagon to carry any of the radioactive material consigned to him for carriage shall ensure that that operator is provided with the Carriage Information, prior to carriage.
- (2) The operator of any freight container, tank container, tank wagon or wagon which is to be used for the carriage of radioactive material shall ensure that each train operator whose train is to be used for the carriage of the material is provided with the Carriage Information prior to carriage.
- (3) The operator of any train which is to be used for the carriage of radioactive material shall ensure that each infrastructure controller on whose railway the material is to be carried is provided with the Carriage Information, prior to carriage.

### **Keeping of Carriage Information**

- 37.** The consignor of any radioactive material, all operators, (including the train operator) who carry that material and the infrastructure controller upon whose railway it is carried shall keep a record of the information contained within the Carriage Information for a period of 2 years from the date on which carriage commenced.

### **Keeping of other information**

**38.**—(1) The consignor of any radioactive material in a package or overpack and the operator of any freight container, tank container, tank wagon or wagon which is used for the carriage of any radioactive material shall retain any information in their possession derived from any measurements of contamination, taken with a view to ensuring that the duties imposed upon them in regulation 23 are complied with, for a period of 2 years from the date on which the carriage commenced.

(2) The designer, manufacturer and consignor of any package, packaging or special form radioactive material shall retain any information in their possession relating to the design, manufacture, testing and maintenance of that package, packaging or special form radioactive material, including (without prejudice to the generality of the foregoing) specifications, calculations, test results, quality assurance programmes and manufacturing records, for so long as the package, packaging or special form radioactive material is in use for the carriage of radioactive material.

### **Information, instruction and training for train crews and other persons connected with the carriage of radioactive material**

**39.**—(1) The operator of any train which is being used for the carriage of radioactive material shall ensure that those members of the crew of that train who have responsibilities in connection with the carriage of that material have received adequate information, instruction and training to enable them to understand—

- (a) the nature of the dangers to which the radioactive material being carried may give rise and the action they should take in an emergency concerning such material; and
- (b) their duties under these Regulations and Articles 8 and 9 of the Health and Safety at Work (Northern Ireland) Order 1978(21).

(2) The train operator shall keep a record of any training received by members of a train crew pursuant to paragraph (1) whilst in his employment and shall make available a copy of that record to the crew members concerned.

(3) The infrastructure controller shall ensure that those of his employees who have responsibilities in connection with the carriage of radioactive material on his railway have received adequate information, instruction and training to enable them to understand—

- (a) the nature of the dangers to which the radioactive material being carried may give rise and the action they should take in an emergency concerning such material; and
- (b) their duties under these Regulations and Articles 8 and 9 of the Health and Safety at Work (Northern Ireland) Order 1978.

(4) The infrastructure controller shall keep a record of any training received by employees pursuant to paragraph (3), and shall make available a copy of that record to the employees concerned.

## **Part IX**

### **Miscellaneous**

#### **Evaluation of radiation emissions**

**40.** For the purpose of ensuring that the carriage of radioactive material does not cause any injury to health or any damage to the environment, the Secretary of State shall arrange for periodic assessments to be carried out to evaluate the radiation emissions arising from such carriage.

### **Exemption certificates**

**41.**—(1) Subject to paragraph (2), and to any provisions imposed by the Communities in respect of the transport of radioactive material by rail, the Department may, by a certificate in writing, exempt—

- (a) any person or class of persons;
- (b) any radioactive material; or
- (c) any package, overpack, freight container, tank container, tank wagon or wagon,

from all or any of the requirements or prohibitions imposed by these Regulations and any such exemption may be granted subject to conditions and to a limit of time and may be revoked by the Department by a certificate in writing at any time.

(2) The Department shall not grant any such exemption unless, having regard to the circumstances of the case and in particular to—

- (a) any conditions which it proposes to attach to the exemption; and
- (b) any other requirements imposed by or under any statutory provisions which apply to the case,

it is satisfied that neither the health or safety of persons who are likely to be affected by the exemption will be prejudiced in consequence of it.

(3) The Secretary of State for Defence may, in the interests of national security, by a certificate in writing, exempt any person from all or any of the requirements or prohibitions imposed by these Regulations insofar as they relate to the carriage of any radioactive material and any such exemption may be granted subject to conditions and to a limit of time and may be revoked by the said Secretary of State at any time by a further certificate in writing.

### **Defence**

**42.**—(1) Subject to paragraphs (2) and (3), in any proceedings for an offence consisting of a contravention of any of the provisions of these Regulations it shall be a defence for the person charged to prove—

- (a) that the commission of the offence was due to the act or default of another person not being one of his employees (hereinafter called “the other person”); and
- (b) that he took all reasonable precautions and exercised all due diligence to avoid commission of the offence.

(2) The person charged shall not be entitled to rely upon the defence referred to in paragraph (1) without leave of the court unless, within a period ending seven clear days before the hearing, he has served on the prosecutor a notice in writing giving such information identifying or assisting in the identification of the other person as was then in his possession.

(3) Where a contravention of any of the provisions of these Regulations by any person is due to the act or default of the other person, that other person shall be guilty of the offence which would, but for any defence under these Regulations available to the first mentioned person, be constituted by the act or default.

### **International provisions**

**43.**—(1) Where, in relation to the carriage of any radioactive material, any provision of regulations 3 to 29, 34 to 38 and 40 applies to a matter to which any specified international provision applies, it shall be sufficient compliance, in relation to that matter, with the provision of the particular regulation if the specified international provision is satisfied in respect of that matter.



(2) For the purposes of paragraph (1), the specified international provision means any provision of—

- (a) ADR;
- (b) the IMDG Code; or
- (c) the Technical Instructions for the Safe Transport of Dangerous Goods by Air, as revised or re-issued from time to time by the International Civil Aviation Organisation<sup>(22)</sup>.

#### **Transitional defence**

**44.** In any proceedings for an offence consisting of a contravention of any of the provisions of these Regulations prior to 1st October 1998, it shall be a defence for the accused to prove that the radioactive material was carried or, in the case of an alleged contravention of regulation 35, intended to be carried before 1st October 1998, in a package, freight container, tank container, tank wagon or wagon in accordance with the Carriage of Dangerous Goods by Rail Regulations (Northern Ireland) 1998<sup>(23)</sup>.

Sealed with the Official Seal of the Department of Economic Development on

L.S.

31st March 1998.

*Philip B. Strong*  
Assistant Secretary

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<sup>(22)</sup> Current edition and supplement (1995—1996): Doc 9284-AN/905

<sup>(23)</sup> S.R. 1998 No. 131

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## SCHEDULE 1

Regulation 1(2)

**Competent Authority Identification Marks**

1. Each approval certificate issued by a competent authority shall be assigned an identification mark.
2. The mark shall be of the following generalised type—“VRI/Number/Type Code”, where—
  - (a) “VRI” represents the international vehicle registration identification code of the state issuing the certificate;
  - (b) “Number” represents the number assigned by the competent authority, which shall be unique with regard to the particular design or shipment; and
  - (c) “Type Code” represents the code used to indicate the type of approval certificate issued as follows—

|      |   |
|------|---|
| AF   | Type A package design for fissile material                |
| B(U) | Type B(U) package design, (B(U)F if for fissile material) |
| B(M) | Type B(M) package design, (B(M)F if for fissile material) |
| IF   | Industrial package design for fissile material            |
| S    | Special form radioactive material                         |
| T    | Shipment  |
| X    | Special arrangement                                       |

3. The shipment approval identification mark shall be clearly related to the design approval identification mark.
4. For package design approval certificates, other than those issued under the provisions of regulation 9, the symbols ‘-85’ shall be added to the Type Code of the package design.

## SCHEDULE 2

Regulation 5(2)

**Application for Approval of Design for Special Form Radioactive Material**

An application for approval of design for special form radioactive material shall include—

- (a) (i) a detailed description of the radioactive material, or  
(ii) if in the form of a capsule, the contents,  
with particular reference to both physical and chemical states;
- (b) a detailed statement of the design of any capsule to be used;
- (c) (i) a statement of the tests which have been done and their results,  
(ii) evidence based on calculative methods to show that the radioactive material is capable of meeting the performance standards, or  
(iii) other evidence that the special form radioactive material meets the applicable requirements of these Regulations; and

- (d) evidence of a quality assurance programme.

### SCHEDULE 3

Regulation 6(2)

#### **Application for Approval of Type B(U) Package Design**

An application for approval of a Type B(U) package design shall include—

- (a) a detailed description of the proposed radioactive contents, with particular reference to their physical and chemical states and the nature of the radiation emitted;
- (b) a detailed statement of the design, including complete engineering drawings, schedules of materials and methods of construction to be used;
- (c)
  - (i) a statement of the tests which have been done and their results, or
  - (ii) evidence based on calculative methods or other evidence to show that the design meets the applicable requirements;
- (d) details of the proposed operating and maintenance instructions for the use of the packaging;
- (e) where the package is designed to have a maximum normal operating pressure in excess of 100 kPa gauge, details in respect of the materials of construction of the containment system, of—
  - (i) the specifications,
  - (ii) the samples to be taken, and
  - (iii) the tests to be made;
- (f) where the proposed radioactive contents are irradiated fuel, a statement of and justification for any assumption made in the safety analysis relating to the characteristics of the fuel;
- (g) details of any special stowage provisions necessary to ensure the safe dissipation of heat from the package taking into account the various modes of transport to be used and type of freight container or wagon;
- (h) a reproducible illustration, not larger than 21 cm×30 cm, showing the make-up of the package;
- (i) evidence of a quality assurance programme; and
- (j) evidence of a suitable emergency plan.

### SCHEDULE 4

Regulation 7(2)

#### **Application for Approval of Type B(M) Package Design**

An application for approval of a Type B(M) package design shall include—

- (a) the information required in Schedule 3;
- (b) a list of the requirements for Type B(U) packages specified in the Approved Document, with which the package does not conform;
- (c) details of any proposed supplementary operational controls to be applied during carriage, not provided for in these Regulations, but which are necessary to ensure the safety of the package or to compensate for the deficiencies listed in accordance with paragraph (b), such

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as human intervention for temperature or pressure measurements or for periodic venting, taking into account the possibility of unexpected delay;

- (d) details of any restrictions on the mode of transport and of any special loading, stowage, carriage or unloading procedures; and
- (e) details of the maximum and minimum ambient conditions, in respect of temperature and solar radiation, expected to be encountered during carriage and which have been taken into account in the design.

#### SCHEDULE 5

Regulation 8(2)

##### **Application for Approval of Package Design for Fissile Material**

An application for approval of a package design for fissile material shall include—

- (a) all the information necessary to satisfy the Secretary of State that the package design meets the requirements for package design for fissile material specified in the Approved Document, taking into account the nature, activity and form of the contents; and
- (b) evidence of a quality assurance programme.

#### SCHEDULE 6

Regulation 10(3)

##### **Application for Approval of Shipment under Special Arrangement**

An application for approval of a shipment under special arrangement shall include—

- (a) all the information necessary to satisfy the Secretary of State that the overall level of safety during carriage will be at least equivalent to that which would have been provided if all the applicable requirements of these Regulations had been met;
- (b) a statement detailing—
  - (i) the respects in which the shipment does not comply with the applicable requirements, and
  - (ii) the reasons why the shipment cannot be sent in full accordance with the applicable requirements;
- (c) a statement detailing any special precautions or special administrative or operational controls which are to be employed during carriage to compensate for the failure to meet the applicable requirements; and
- (d) evidence of a suitable emergency plan.

#### SCHEDULE 7

Regulation 11(2)

##### **Application for Approval of Shipment**

An application for approval of a shipment under regulation 11 shall include—

- (a) a statement of the period of time, related to the shipment for which the approval is sought;
- (b) a description of the radioactive contents, the expected mode of transport, the type of conveyance and the probable or proposed route;

- (c) details of how the special precautions and special administrative or operational controls, referred to in the package design approval certificates issued under regulations 6, 7 and 8, are to be put into effect; and
- (d) evidence of a suitable emergency plan.

## SCHEDULE 8

Regulation 15(1)

### **Package Inspection Requirements Prior to First Shipment**

The inspection to be carried out before the first shipment of any package shall ensure that—

- (a) where the design pressure of the containment system exceeds 35 kPa, the containment system of the package conforms to the approved design requirements which relate to the capability of the system to maintain its integrity under pressure;
- (b) for each Type B package and for each packaging containing fissile material, the effectiveness of its shielding and containment system, and, where necessary, the heat transfer characteristics, fall within the limits applicable to or specified for the approved design; and
- (c) for each packaging containing fissile material, where, in order to comply with the requirements of the Approved Document, neutron poisons are specifically included as components of the package, tests are performed to confirm the presence and distribution of those neutron poisons.

## SCHEDULE 9

Regulation 15(2)

### **Package Inspection Requirements Prior to Any Shipment**

The inspection to be carried out before any shipment of a package shall ensure that—

- (a) any lifting attachments which do not meet the applicable requirements in paragraph 1 of the Approved Document have been removed or otherwise rendered incapable of being used for lifting the package;
- (b) for each Type B package and for each packaging containing fissile material, all the requirements specified in the approval certificates and the applicable provisions of these Regulations have been complied with;
- (c) each Type B package is held until equilibrium conditions have been approached closely enough to demonstrate compliance with the shipment requirements for temperature and pressure unless an exemption from these requirements has received unilateral approval;
- (d) subject to paragraph (e), for each Type B package, an examination and where appropriate tests are carried out to ensure that all closures, valves, and other openings of the containment system through which the radioactive contents might escape are properly closed and, where appropriate, sealed; and
- (e) paragraph (d) shall not apply to a Type B package where the containment system of that package is provided by radioactive material in special form, provided there is in existence a valid special form radioactive material approval certificate.

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## SCHEDULE 10

Regulation 16(2)

**Notification of Shipment to Competent Authority**

The notification required by regulation 16(2) shall be delivered to the competent authority at least 7 days prior to the commencement of the shipment and shall include—

- (a) sufficient information to identify the package, including all applicable approval certificate numbers and competent authority identification marks;
- (b) details of the date of shipment, the expected date of arrival and proposed routing;
- (c) the name of the radioactive material or nuclide;
- (d) a description of the physical and chemical form of the radioactive material, or whether it is special form radioactive material; and
- (e) the maximum activity of the radioactive contents during carriage expressed in units of Bq with the appropriate SI prefix, except in the case of fissile material, where the mass of fissile material in units of grammes (g), or multiples thereof, may be used in place of activity.

## SCHEDULE 11

Regulation 22(2)

**Radiation Level Limits for Consignments under Exclusive Use**

The radiation level for any consignment carried under exclusive use in a freight container or wagon shall not exceed—

- (a) 10 mSv/h at any point on the external surfaces of any package or overpack, and may only exceed 2 mSv/h provided that—
  - (i) the freight container or wagon in which the consignment is carried is equipped with an enclosure which, during routine carriage, prevents the access of unauthorised persons to the interior of the enclosure,
  - (ii) provisions are made to secure the package or overpack so that its position within the freight container or wagon remains fixed during routine carriage, and
  - (iii) there are no intermediate loading or unloading operations during the carriage of that consignment;
- (b) 2 mSv/h at any point on—
  - (i) the external surfaces of the freight container or wagon, (where the wagon is closed), or
  - (ii) the vertical planes projected from the outer edges of the wagon, on the upper surface of the load and on the lower external surface of the wagon, (where the wagon is open), and
- (c) 0.1 mSv/h at any point 2 metres from—
  - (i) the vertical planes represented by the outer lateral surfaces of the freight container or wagon (where the wagon is closed), or
  - (ii) the vertical planes projected from the outer edges of the wagon (where the wagon is open).

## SCHEDULE 12

Regulation 29(2)

### **Loading, Stowage and Unloading of Radioactive Material**

#### **Packages and overpacks in freight containers and wagons**

1. Packages and overpacks carried in a freight container or wagon shall be positioned so that they cannot shift dangerously or fall.

2. A package or overpack may be carried among packaged general cargo in a freight container or wagon without any specific stowing provisions (except as may be specifically required by the Secretary of State in an applicable approval certificate), provided—

- (a) its average surface heat flux does not exceed 15W/m<sup>2</sup>; and
- (b) the immediately surrounding cargo is not in sacks or bags.

3. In the case of a shipment under special arrangement,

- (a) mixing of packages of different kinds of radioactive material, including fissile material; and
- (b) mixing of different kinds of packages with different Transport Indexes,

in a freight container or wagon is prohibited, unless specifically authorised under the special arrangement.

#### **Type B(U) and Type B(M) packages**

4. If the average heat flux from a Type B(U) or Type B(M) package being carried in a freight container or wagon could exceed 15 W/m<sup>2</sup>, any special stowage provisions specified in the package design approval certificate shall be observed.

5. Subject to paragraphs 6 and 7, the maximum temperature of any surface of a Type B(U) or Type B(M) package which is readily accessible during carriage in a freight container or wagon shall not exceed 85°C in the absence of insulation under the ambient condition of 38°C.

6. Where the maximum temperature of any accessible surface of a Type B(U) or Type B(M) package could exceed 50°C during carriage in a freight container or wagon, the package may only be carried under exclusive use.

7. When determining the maximum temperatures referred to in paragraphs 5 and 6, account may be taken of barriers or screens intended to give protection to any person engaged in the carriage of a Type B(U) or Type B(M) package in a freight container or wagon without the barriers or screens being subject to any test.

## SCHEDULE 13

Regulations 9(3) and 34

### **Information to be Displayed During Carriage**

#### **Part I**

#### **Packages and Overpacks**

1. Paragraphs 2 to 11 shall apply to packages, other than excepted packages, and overpacks.

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### Common provisions

2.—(1) Each package and overpack shall display danger signs conforming to figure 2, 3 or 4 in Part III, according to the appropriate category.

(2) The danger signs referred to in sub-paragraph (1) shall be affixed to two opposite sides of the package or overpack.

3.—(1) Subject to sub-paragraph (5), the following information shall be legibly and durably marked on each danger sign displayed in accordance with paragraph 2—

- (a) in the upper half of each sign, the trefoil, conforming to the model depicted in figure 1 in Part III; and
- (b) in the lower half of each sign—
  - (i) the word “RADIOACTIVE” followed by a single, double or triple vertical bar to indicate the category,
  - (ii) the CONTENTS in accordance with sub-paragraphs (2) to (4),
  - (iii) the maximum ACTIVITY of the radioactive contents during carriage expressed in Bq with the appropriate SI prefix, except where the contents are fissile material where the total mass expressed in units of grammes (g) or multiples thereof may be displayed instead of activity,
  - (iv) for category II-YELLOW and category III-YELLOW, the Transport Index, and
  - (v) the figure “7” measuring not less than 25mm in height.

(2) Except for LSA-I, the CONTENTS shall comprise—

- (a) subject to sub-paragraph (3)—
  - (i) the symbol of the radionuclide, specified in Table I of paragraph 19 of the Approved Document, and
  - (ii) the element and atomic number (hereinafter referred to in this Schedule as the “name”) of that radionuclide, where one is specified in that Table; and
- (b) the group of LSA material or SCO (LSA-II, LSA-III, SCO-I or SCO-II, as appropriate), following the name of the radionuclide.

(3) For mixtures of radionuclides, the most restrictive nuclides shall be listed to the extent that the space on the line permits.

(4) For LSA-I, the CONTENTS shall comprise the term “LSA-I” only.

(5) The CONTENTS and ACTIVITY entries on each overpack shall reflect the entire contents of the overpack, except where the overpack concerned contains mixed loads of packages with different radionuclides, when those entries may be replaced by the words “see Carriage Information”.

4. Where the package or overpack contains any radioactive material listed in paragraph 20 of the Approved Document in respect of which a subsidiary hazard is specified in that paragraph, the appropriate subsidiary hazard sign, determined in accordance with regulation 5 of the CDGCPL Regulations and conforming to the specification in Schedule 2 to those Regulations shall—

- (a) be affixed to the package or overpack concerned, adjacent to each danger sign; and
- (b) have sides which measure not less than 100 mm.

5. Each package shall be legibly and durably marked with the UN number for the radioactive material shown in the Carriage Information.



### **Special provisions**

6. Each package with a gross mass exceeding 50 kg shall be legibly and durably marked on the outside with its permissible gross mass.

7. Each TYPE A PACKAGE containing radioactive material other than fissile material shall be legibly and durably marked on the outside with the words “Type A”.

8. Each TYPE B(U) PACKAGE and each TYPE B(M) PACKAGE containing radioactive material other than fissile material shall be legibly and durably marked on the outside with—

- (a) the competent authority identification mark;
- (b) the serial number to identify uniquely the packaging which conforms to the design for that package;
- (c) the words “Type B(U)” or “Type B(M)”, as appropriate; and
- (d) the trefoil symbol depicted in figure 1 in Part III, embossed or stamped on the outermost fire and water resistant receptacle.

9. Each package and overpack containing fissile material shall be legibly and durably marked on the outside with—

- (a) the competent authority identification mark; and
- (b) the words “Type A”, “Type B(U)”, or “Type B(M)”, as appropriate.

10. Where an excepted package contains radioactive material of limited activity, the packaging shall be legibly and durably marked with the word “RADIOACTIVE” on an internal surface.

11. Where an excepted package contains any instrument or article (other than radio-luminescent time-pieces or devices) that instrument or article, as the case may be, shall be legibly and durably marked on the outside with the word “RADIOACTIVE”.

## **Part II**

### **Freight Containers, Tank Containers, Tank Wagons and Wagons**

#### **Interpretation**

12. For the purposes of paragraphs 13 to 20, any reference to the carriage of any radioactive material in a wagon shall include the carriage of radioactive material in a road vehicle on a wagon (“piggyback transport”).

#### **Common provisions**

13.—(1) Danger signs conforming to figure 2, 3 or 4 in Part III according to the appropriate category, shall be displayed on each freight container, tank container, tank wagon and wagon which is being used for the carriage of radioactive material, other than in the form of excepted packages.

(2) The danger signs referred to in sub-paragraph (1) shall—

- (a) be affixed to all four sides of the freight container, tank container, tank wagon or wagon;
- (b) be affixed in a vertical plane, perpendicular to the longitudinal axis of the freight container, tank container, tank wagon or wagon; and
- (c) be clearly visible.

14.—(1) Subject to sub-paragraph (5), the following information shall be legibly and durably marked on each of the danger signs displayed in accordance with paragraph 13—

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- (a) in the upper half of each sign, the trefoil, conforming to figure 1 in Part III; and
  - (b) in the lower half of each sign—
    - (i) the word “RADIOACTIVE” followed by a single, double or triple vertical bar to indicate the category,
    - (ii) the CONTENTS in accordance with sub-paragraphs (2) to (4),
    - (iii) the maximum ACTIVITY of the radioactive contents during carriage expressed in Bq with the appropriate SI prefix, except where the contents are fissile material where the total mass expressed in units of grammes (g) or multiples thereof may be displayed instead of the maximum activity,
    - (iv) for category II-YELLOW, and category III-YELLOW the TRANSPORT INDEX, and
    - (v) the figure “7”, measuring not less than 25mm in height.
  - (2) Except for LSA-I, the CONTENTS shall comprise—
    - (a) subject to sub-paragraph (3), the symbol of the radionuclide, as specified in Table I of paragraph 19 of the Approved Document, and the name of that radionuclide, where one is specified in that Table; and
    - (b) the group of LSA material or SCO (LSA-II, LSA-III, SCO-I or SCO-II, as appropriate), following the name of the radionuclide.
  - (3) For mixtures of radionuclides, the most restrictive nuclides shall be listed to the extent that the space on the line permits.
  - (4) For LSA-I, the CONTENTS shall comprise “LSA-I” only.
  - (5) The CONTENTS and ACTIVITY entries shall reflect the entire contents of the freight container, tank container, tank wagon or wagon, except where the freight container, tank container, tank wagon or wagon concerned contains mixed loads of packages with different radionuclides, when those entries may be replaced by the words “see Carriage Information”.
- 15.—(1) Subject to paragraph 17, danger signs conforming to figure 5 in Part III shall be displayed on each freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material, other than in the form of excepted packages.
- (2) The danger signs referred to in sub-paragraph (1) shall—
    - (a) be affixed to all four sides of the freight container, tank container, tank wagon or wagon;
    - (b) be affixed in a vertical plane, perpendicular to the longitudinal axis of the freight container, tank container, tank wagon or wagon; and
    - (c) be clearly visible.
16. The following information shall be legibly and durably marked on the danger signs displayed in accordance with paragraph 15—
- (a) in the upper half of each sign, the trefoil conforming to figure 1 in Part III; and
  - (b) in the lower half of each sign—
    - (i) the word “RADIOACTIVE”, and
    - (ii) the figure “7”, measuring not less than 25 mm in height.
17. The danger signs referred to in paragraph 15 need not be affixed to any freight container, tank container, tank wagon or wagon which is being used for the carriage of radioactive material, provided the sides of the danger signs displayed in accordance with paragraph 13 are enlarged to measure not less than 250 mm.

### Special provisions

18. Where the consignment is unpackaged LSA-I or SCO-I for carriage in a freight container, tank container, tank wagon or wagon or the consignment is packaged radioactive material having a single UN number for carriage under exclusive use, the appropriate UN number for the consignment shall be displayed in black digits not less than 65 mm high either—

- (a) in the lower half of the danger signs displayed in accordance with paragraph 15; or
- (b) on orange-coloured panels conforming to figure 6 in Part III, which shall—
  - (i) be affixed immediately adjacent to the danger signs displayed in accordance with paragraph 13,
  - (ii) be affixed in a vertical plane and perpendicular to the longitudinal axis of the freight container, tank container, tank wagon or wagon, and
  - (iii) be clearly visible.

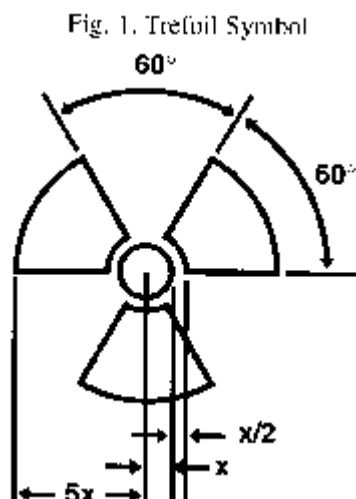
19. Where the freight container, tank container, tank wagon or wagon is being used for the carriage of any radioactive material listed in paragraph 20 of the Approved Document in respect of which a subsidiary hazard is specified in that paragraph, the appropriate subsidiary hazard sign, determined in accordance with regulation 5 of the CDGCPL Regulations and conforming to the specification in Schedule 2 to those Regulations shall—

- (a) be affixed to the freight container, tank container, tank wagon or wagon concerned adjacent to each danger sign; and
- (b) have sides which measure not less than 250 mm.

## Part III

### Symbols, Signs and Panels

Fig. 1. Trefoil Symbol

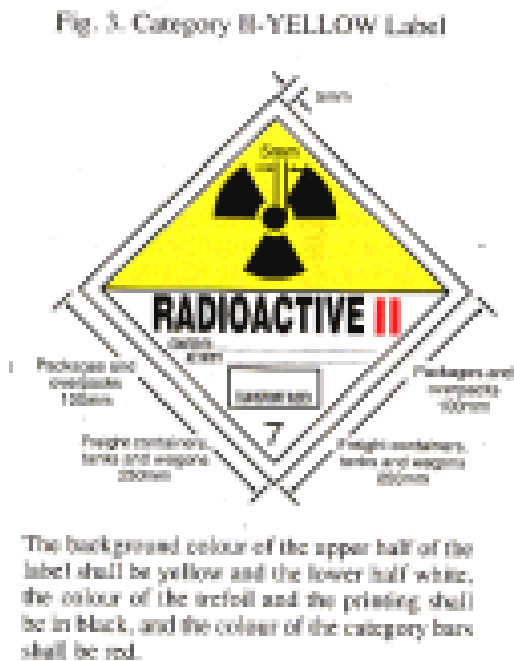


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Fig. 2. Category I-WHITE Label The background colour of the label shall be white, the colour of the trefoil and the printing shall be in black, and the colour of the category bar shall be red.



Fig. 3. Category II-YELLOW Label The background colour of the upper half of the label shall be yellow and the lower half white, the colour of the trefoil and the printing shall be in black, and the colour of the category bars shall be red.



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Fig. 4. Category III-YELLOW Label The background colour of the upper half of the label shall be yellow and the lower half white, the colour of the trefoil and the printing shall be in black, and the colour of the category bars shall be red.



Fig. 5. Placard Minimum dimensions are given: when larger dimensions are used the relative proportions must be maintained. The figure "7" shall not be less than 25mm high. The background colour of the upper half of the placard shall be yellow and the lower half white, the colour of the trefoil and the printing shall be black. The use of the word "RADIOACTIVE" in the bottom half

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is optional to allow the alternative use of this placard to display the appropriate United Nations number for the consignments.

Fig. 5. Placard



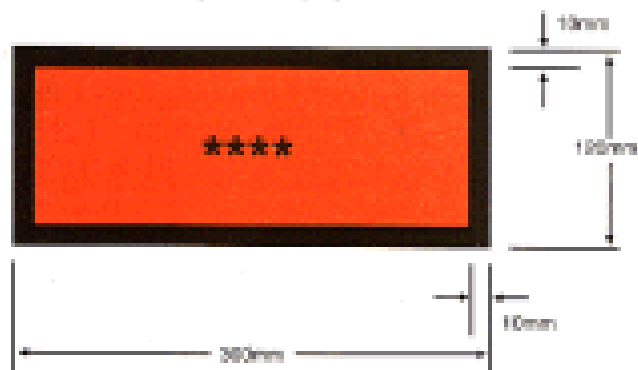
Minimum dimensions are given: when larger dimensions are used the relative proportions must be maintained. The figure "7" shall not be less than 25mm high. The background colour of the upper half of the placard shall be yellow and the lower half white, the colour of the trefoil and the printing shall be black. The use of the word "RADIOACTIVE" in the bottom half is optional to allow the alternative use of this placard to display the appropriate United Nations number for the consignments.

Fig. 6. Placard for separate display of the United Nations numberThe background colour of the placard shall be orange and the border and United Nations number shall be black. The symbol

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“\*\*\*\*” denotes the space in which the appropriate United Nations number for radioactive material, as specified in paragraph 20 of the Approved Document shall be displayed.

Fig. 6. Placard for separate display of the United Nations number



The background colour of the placard shall be orange and the border and United Nations number shall be black. The symbol “\*\*\*\*” denotes the space in which the appropriate United Nations number for radioactive material, as specified in paragraph 20 of the Approved Document shall be displayed.

## SCHEDULE 14

Regulation 35(2)(b)

### Carriage Information

1. Subject to paragraph 2, the Carriage Information shall comprise, in documentary form, in respect of each consignment, the following—

- (a) the name and address of the consignor;
- (b) the name and address of the consignee;
- (c) the proper shipping name of the radioactive material, as specified in paragraph 20 of the Approved Document;
- (d) the United Nations Class Number “7”;
- (e) the words “radioactive material”, unless those words appear in the proper shipping name;
- (f) the UN number assigned to the radioactive material, as specified in paragraph 20 of the Approved Document;
- (g) for LSA material, the group notation “LSA-I”, “LSA-II” or “LSA-III”, as appropriate;
- (h) for SCO, the group notation “SCO-I” or “SCO-II”, as appropriate;
- (i)
  - (i) the name or symbol of each radionuclide, or
  - (ii) for mixtures of radionuclides, a general description or a list of the most restrictive nuclides;
- (j) a description of the physical and chemical form of the radioactive material or a statement that the radioactive material is special form radioactive material (a generic description is acceptable for chemical form);
- (k)
  - (i) the maximum activity of the radioactive contents during carriage expressed in Bq with the appropriate SI prefix, or

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- (ii) where the radioactive material is fissile material, the total mass of the material in units of grammes or appropriate multiples thereof;
  - (l) the category of each package determined in accordance with the Approved Document;
  - (m) for category II-YELLOW and category III-YELLOW packages, the Transport Index;
  - (n) where all the packages in the consignment contain fissile material and fall within paragraph 7 of the Approved Document, the words “FISSILE EXCEPTED”;
  - (o) the competent authority identification mark for each approval certificate applicable to the consignment;
  - (p) where the consignment consists of packages in an overpack, freight container or wagon, a statement of the contents of each package within the overpack, freight container or wagon concerned and, where appropriate, of each overpack, freight container or wagon in the consignment;
  - (q) where a consignment is to be carried under exclusive use, the statement “EXCLUSIVE USE SHIPMENT”;
  - (r) instructions concerning the loading, stowage, unloading and carriage of the package, overpack, freight container, tank container, tank wagon or wagon;
  - (s) the contingency plan required by regulation 27 of the Ionising Radiations Regulations (Northern Ireland) 1985(24);
  - (t) subject to paragraph 3, the consignor’s declaration, dated and signed or authenticated by or on behalf of the consignor, in the following terms or in terms having equivalent meaning—
    - “I hereby declare that the contents of this consignment are fully and accurately described in this Carriage Information by their proper shipping name and are classified, packaged, marked and labelled and are in all respects in a suitable condition for carriage by rail according to the applicable international and national governmental regulations”.
2. The Carriage Information for excepted packages shall comprise—
- (a) the words “RADIOACTIVE MATERIAL, EXCEPTED PACKAGE”; and
  - (b) the UN number and Proper Shipping Name for the radioactive material, as specified in paragraph 20 of the Approved Document.
3. A facsimile signature on the consignor’s declaration is permitted in place of the original signature.
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## EXPLANATORY NOTE

*(This note is not part of the Regulations.)*

1. These Regulations implement Council Directive [96/49/EC](#) on the approximation of the laws of the Member States with regard to the transport of dangerous goods by rail insofar as it relates to radioactive material and make provision for the carriage by rail of radioactive material.

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(24) [S.R. 1985 No. 273](#) to which there are amendments not relevant to these Regulations



2. The terms and expressions used in the Regulations are defined in regulation 1 and the scope of the Regulations is defined in regulation 2.

3. The Regulations—

- (a) require the approval of the Department of Economic Development (“the Department”) of the document entitled “Approved Requirements for the Packaging, Labelling and Carriage of Radioactive Material by Rail” published by the Great Britain Health and Safety Commission and set out duties on specified persons to comply with applicable provisions of that document (*regulations 3 and 4*);
- (b) require approval by the Secretary of State (or, in certain circumstances, other competent authority) of the design of specified types and packages and of certain shipments of radioactive material before that material can be carried (*regulations 5 to 11*);
- (c) require specified persons to establish and maintain adequate quality assurance programmes, and permit the Secretary of State to require additional testing of any package of special form radioactive material (*regulations 12 and 13*);
- (d) require the allocation, notification to the Secretary of State and registration of unique serial numbers for packaging (*regulation 14*);
- (e) impose requirements for package inspection, proof of package design approval and notification of specified shipments prior to shipment (*regulations 15 and 16 and Schedules 8 to 10*);
- (f) impose prohibitions and restrictions on the carriage of radioactive material including prohibitions and restrictions relating to—
  - (i) the suitability of freight containers, tank containers, tank wagons and wagons,
  - (ii) contents limits of packages, Transport Index limits, activity limits, radiation level limits and contamination level limits (*regulations 17 to 23*);
- (g) impose restrictions on the carriage of radioactive material in tanks, prohibit the overfilling with radioactive material of tank containers and tank wagons and require the openings in any tank container or tank wagon and any valves and caps to be securely closed prior to and during carriage (*regulations 24 to 26*);
- (h) impose prohibitions and restrictions on the carriage of radioactive material in bulk (*regulation 27*);
- (i) prohibit the carriage of specified mixed or inadequately segregated loads, and impose requirements in relation to the loading, stowage and unloading of radioactive material (*regulations 28 and 29 and Schedule 12*);
- (j) impose requirements to ensure the safe carriage and security of radioactive material and to prevent fire, explosion or leakage during carriage (*regulations 30 and 32*);
- (k) require train operators to ensure the safe marshalling and formation of trains carrying radioactive material (*regulation 31*);
- (l) require train operators, facility owners and infrastructure controllers to draw up emergency arrangements and to co-operate with each other to ensure effective co-ordination of those arrangements (*regulation 33*);
- (m) require specified information to be displayed on any package, overpack, freight container, tank container, tank wagon or wagon used for the carriage of radioactive material and impose duties in relation to that display (*regulation 34*);
- (n) require—
  - (i) the consignor to be in possession of, and make available for inspection by the operator, all certificates of approval and to be in possession of a set of instructions concerning preparations for shipment, and

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- (ii) Carriage Information to be provided to operators of freight containers, tank containers, tank wagons and wagons, train operators and infrastructure controllers prior to carriage and for that information and other specified information to be kept (*regulations 35 to 38*);
  - (o) require train crew members and employees of infrastructure controllers who have responsibilities in connection with the carriage of radioactive material to receive adequate information, instruction and training, and records of that training to be kept and made available to trainees (*regulation 39*);
  - (p) require the Secretary of State to make provision for periodic assessment of radioactive emissions arising from the carriage of radioactive material (*regulation 40*);
  - (q) permit the granting of exemptions by the Department or the Secretary of State for Defence in given circumstances (*regulation 41*); and
  - (r) provide a defence to the Regulations and allow alternative compliance with specified international provisions, where those provisions apply to a matter to which these Regulations apply, and provide a transitional defence (*regulations 42 to 44*).
4. Copies of relevant documents may be obtained as follows—
- (a) the European Agreement concerning the International Carriage of Dangerous Goods by Road (“ADR”) (1995 edition) (ISBN 0 11 551265 9), the Convention concerning International Carriage by Rail (“COTIF”), Cmnd. 5897, and the Regulations for the Safe Transport of Radioactive Material (1985 edition, as amended 1990) published by the International Atomic Energy Agency, Vienna, 1990, Safety Series No. 6 (ISBN 92 0 123890 8) from The Stationery Office Bookshop, 16 Arthur Street, Belfast BT1 4GD;
  - (b) the Approved Requirements for the Packaging, Labelling and Carriage of Radioactive Material by Rail from HSE Books, PO Box 1999, Sudbury, Suffolk CO10 6FS; Dillons; and all good booksellers;
  - (c) the International Organisation for Standardisation document *Sealed radioactive sources—Classification* (ISO 2919-1980 (E)) and the International Organisation for Standardisation document *Series 1 Freight Containers—Specifications and Testing—0 Part 1: General Cargo Containers* (ISO 1496/1-1978) and the International Organisation for Standardisation document *Sealed Radioactive Sources—Leak Test Methods* (ISO/TR 4826-1979 (E)) from The Stationery Office and the British Standards Institution, British Standards House, 389 Chiswick High Road, London W4 4AL;
  - (d) the current edition of the International Maritime Dangerous Goods Code (volumes I to IV ISBN 92 801 1314 3, supplement ISBN 92 801 1316 X) from the International Maritime Organisation, 4 Albert Embankment, London SE1 7SR; and
  - (e) the current edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284-AN/905 and supplement) from Civil Aviation Authority, Printing and Publications Service, Greville House, 37 Gratton Road, Cheltenham, Gloucestershire GL50 2BN.

5. In Great Britain, the corresponding Regulations are the Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 1996. The Great Britain Health and Safety Executive has prepared a cost benefit assessment in relation to those Regulations and a copy of that assessment together with the Northern Ireland Supplement prepared by the Department of Economic Development is held at 83 Ladas Drive, Belfast BT6 9FJ from where a copy may be obtained on request.

6. A person who contravenes these Regulations or any requirement or prohibition imposed thereunder, is guilty of an offence under Article 31 of the Health and Safety at Work (Northern

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Ireland) Order 1978 and is liable, on summary conviction, to a fine not exceeding the statutory maximum (currently £5,000) or, on conviction on indictment, to a fine.